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Perlegen Sciences, Inc.  
2021 Stierlin Court  
Mountain View, CA 94043  
(650) 625-4500

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**DATE:** March 24, 2006

**TO:** Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**From:** Deana A. Arnold, Ph.D.

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**Fax:** 571.273.8300

**Fax:** 650.625.4574

**Tel:**

**Phone:** 650.625.4603

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**NUMBER OF PAGES INCLUDING THIS COVER SHEET:** 4

Following is a Response to a Restriction Requirement.

Please contact the undersigned if you have any problems with this transmission.

Thank you,  
Deana Arnold  
Patent Agent/Scientific Liaison  
Perlegen Sciences, Inc.  
650-625-4603  
darnold@perlegen.com

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Docket No. 100/1026-10

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on March 24, 2005

By Debbie Vitale  
Debbie Vitale

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

<p>In re application of: Berno, Anthony, et al.</p> <p>Application No.: 10/768,788</p> <p>Filed: January 30, 2004</p> <p>Title: Apparatus and Methods for Analyzing and Characterizing Nucleic Acid Sequences</p>	<p>Examiner: Whaley, Pablo S.</p> <p>Group: 1631</p> <p>Confirmation No.: 7134</p> <p><b>RESPONSE TO RESTRICTION REQUIREMENT</b></p>
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Commissioner for Patents  
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Alexandria, VA 22313-1450

Sir:

In response to the Restriction Requirement mailed February 28, 2006, Applicants respectfully traverse the restriction of the claims. Applicants do not agree that the claims as originally filed present an unreasonable search burden to the Examiner. However, in the interest of expediting prosecution, Applicants elect to prosecute the claims in Group I (claims 1-118 and 133-139), drawn to a computer-implemented method and data processing apparatus for characterizing an interrogation position in a nucleic acid segment, a method for determining a relative allele frequency for an interrogation position in a nucleic acid segment, and a computer implemented method for characterizing a polymorphic marker in a nucleic acid, classified in class 702, subclass 19, in the above-identified application.

Further, in response to the species election requirements, Applicants respectfully traverse the species election requirement and submit that it is improper since the claims as originally filed do not present a serious burden to the Examiner as required under MPEP 803. In addition, the Examiner has not shown by appropriate explanation that these inventions have separate

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classifications, separate status in the art, or that examination of them would require a different field of search as required under MPEP 808.02, which states, "Where, however, the classification is the same and the field of search is the same and there is no clear indication of separate future classification and field of search, no reasons exist for dividing among related inventions." Applicants respectfully submit that these allegedly patentably distinct species do not have separate classifications, separate status in the art, nor do they require a different field of search. For example, the different phenotypic characteristics of interest recited in the instant application do not cause the resulting embodiments to have separate classifications or separate status in the art, and the fact that these elements are interchangeable and are all phenotypic characteristics of interest supports the conclusion that the inventions would not require different fields of search. However, in order to comply with 35 U.S.C. 121, Applicants further elect a single species from each of the five classes of species indicated by the Examiner. These elections are detailed below.

A. (Phenotypic characteristics of interest): Applicants elect to prosecute claims for which the phenotypic characteristic of interest is susceptibility to, resistance to, or adverse effects of a therapy. Claim 10 reads on the elected species since it describes such an embodiment.

B. (Measure of relative allele frequency): Applicants elect to prosecute claims for which the measure of relative allele frequency is determined using at least two intensity of signal measurements by calculating at least one of the equations of the form recited in claim 52. Claims 52-54 all read on the elected species since they all describe such embodiments.

C. (Mean intensities): Applicants elect to prosecute claims for which the mean intensities are based on trimmed means. Claims 63, 111, and 117 all read on the elected species since they all describe such embodiments.

D. (Candidate genes): Applicants elect to prosecute claims for which the candidate genes are not previously known to be associated with the phenotypic characteristic of interest. Claims 129 and 131 read on the elected species since they describe such embodiments. However, Applicants believe that this species election requirement does not comply with MPEP 806.04(f), which states that "Claims to be restricted to different species must be mutually exclusive." The claims presented in the instant application that recite various types of candidate genes are not mutually exclusive. For example, the same nucleotide segment may be both proximal to a region

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of a candidate gene not previously known to be associated with the phenotypic characteristic of interest and within a region of a candidate region that is previously suspected of being associated with the phenotypic characteristic of interest. As such, Applicants respectfully request that the Examiner withdraw the instant species election requirement.

E. (Nucleotide segment positions): Applicants elect to prosecute claims for which the nucleotide segment is proximal to a region of a candidate gene, and claims 129-132 all read on the elected species. However, Applicants believe that this species election requirement does not comply with MPEP 806.04(f), which states that "Claims to be restricted to different species must be mutually exclusive." The claims presented in the instant application that describe various nucleotide segment positions are not mutually exclusive. For example, a nucleotide segment that is "within an untranslated region of a candidate gene" is necessarily "within a region of a candidate gene." As such, Applicants respectfully request that the Examiner withdraw the instant species election requirement.

Applicants believe the present application is in condition for early examination, and action toward that end is respectfully requested. If any fees are due in connection with the filing of this Response to Restriction Requirement, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-2043. If the Examiner believes a telephone interview would expedite the examination of this application, the Examiner is requested to contact the undersigned at the telephone number below.

Respectfully submitted,



Deana A. Arnold, Ph.D.  
Reg. No. 52,567

Perlegen Sciences, Inc.  
2021 Stierlin Court  
Mountain View, CA 94043  
Ph: (650) 625-4603  
Fax: (650) 625-4574